Appl. No. 10/613,357
Amdt. dated January 16, 2007
Reply to Office Action of October 16, 2006

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REMARKS/ARGUMENTS

This Amendment is in response to the Office Action mailed October 16, 2006. Claims 1-25 were pending in the present application. Claims 1, 3, 10, 16, 17, 20, 23, and 24 have been amended. Claim 15 has been canceled without prejudice and without disclaimer. No claims have been added. Accordingly, claims 1-14 and 16-25 remain pending in the present application after entry of this Amendment. Reconsideration of the rejected claims is respectfully requested.

I.   **35 U.S.C. § 112 Rejections of Claims 3 and 4**

Claims 3 and 4 were rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which is not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention.

The Examiner's rejection is traversed. Paragraph 47 of the specification as filed explicitly describes both the count key data and fixed block architecture formats: "Generally, the mainframe uses count-key-data format (CKD)... CKD format uses a variable data length format... The open system uses a fixed block architecture (FBA) format that uses fixed-length data." In addition, the CKD and FBA formats are very well known and understood formats, and are readily recognizable by those of ordinary skill in the database arts, or in the storage arts as being conventional data formats.

Therefore, claims 3 and 4 as originally filed are clearly supported by the specification. As such, Applicant respectfully requests that the rejections with respect to these claims be withdrawn.

Claim 3 has been amended to correct a typographical error, but nonetheless is believed to be enabling as originally filed.

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II.   35 U.S.C. § 112 Rejection of Claim 17

Claim 17 was rejected under 35 U.S.C. § 112, second paragraph, as being incomplete for omitting essential steps. In particular, claim 17 was rejected for omitting the conversion of the received data from a second format to a third format.

Claim 16, from which claim 17 depends, has been amended to clarify that the received data has both a first format and a third format. An illustrative embodiment of a first format is a file format, as disclosed in the specification and as recited in dependent claim 18. An illustrative embodiment of a third format is a character-set format, as disclosed in the specification and as recited in dependent claim 19. Thus, a file has a file format which specifies how the data comprising the file is stored in the file, and a character-set format which identifies the character set used to represent the data comprising the file. Therefore, a conversion of the received data from one file format (first format) to another file format (second format), as recited in claim 16, is independent of a conversion of the received data from one character-set format (third format) to another character-set format (fourth format), as recited in claim 17. Applicant therefore respectfully requests that the rejection with respect to this claim be withdrawn.

III.   35 U.S.C. § 103 Rejections of Claims 1-6 and 12

Claims 1-6 and 12 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,794,234 to Church et al. (hereinafter "Church") in view of U.S. Patent No. 5,845,283 to Williams et al. (hereinafter "Williams '283"). The Applicant respectfully submits that the references cited by the Examiner do not teach or suggest each claimed limitation. Therefore, the Applicant requests reconsideration and withdrawal of the rejections.

Embodiments of the present invention are directed to techniques for integrating data between storage volumes residing on a single storage system. For example, amended claim 1 recites, in part:

> extracting data from a first volume of a storage system, the first volume associated with a first computer system of first type, the extracted data having a first file format and a first character-set format, the storage system being coupled to a plurality of computer systems;
> encrypting the data using a first security key;
> storing the encrypted data in a shared volume of the storage system;

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receiving the encrypted data from the shared volume of the storage system at a second computer system of second type, the first and second computer system being of different computer systems;

converting the received data from the first file format to a second file format, the first file format being native to the first computer system and the second file format being native to the second computer system;

decrypting the received data using a second security key that is associated with the first security key;

converting the received data from the first character-set format to a second character-set format, the first character-set format being <u>native</u> to the first computer system, the second character-set format being <u>native</u> to the second computer system; and

thereafter, <u>loading the received data to a second volume of the storage system</u>, the second volume associated with the second computer system

(*Emphasis added*). As will be discussed below, the emphasized claim limitations are neither taught or suggested by Church or Williams '283.

Church is directed to a technique for transferring information between the disparate computer systems of commercial trading partners. Abstract. Each trading partner's computer (102) includes its own transaction database 236. Fig. 2. The invention of Church operates by reading data from the transaction database of a first trading partner's computer, transmitting the data across network 106, and then storing the data in the transaction database of a second trading partner's computer. Col. 4, lines 18-61.

Church does not teach or suggest integrating data between the volumes of a <u>single storage system</u>, as recited in the claimed embodiments. Rather, Church discloses transferring data between <u>separate storage systems</u>. Church's transaction database of the sending computer is stored in a storage system of the sending computer, while the transaction database of the receiving computer is stored in a storage system of the receiving computer which is separate from the storage system of the sending computer. Thus, Church fails to teach or even suggest "extracting data from a first volume of <u>a storage system</u>,... storing the encrypted data in a shared volume of <u>the storage system</u>,... [and] loading the received data to a second volume of <u>the storage system</u>..." as recited in claim 1.

Furthermore, Church describes a process for converting data transmitted between a sender and receiver computer that includes: (1) conversion from the format of the sending computer <u>to a universal format</u>; and (2) conversion <u>from the universal format</u> to the format of the

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receiving computer. *See* Col. 3 lines, 65-67' Col. 4 lines 56-61. Church does not disclose the conversion of data directly from the native format a first computer to the native format of a second computer. Clearly, Church fails to teach or even suggest "converting the received data from the first file format to a second file format, the first file format being native to the first computer system and the second file format being native to the second computer system" as recited in claim 1 because Church teaches converting to the universal format which is not a format that is native to either the sending computer or the receiving computer.

Williams '283 does not remedy the deficiencies of Church with respect to claim 1. Williams '283 relates to a device for converting a data input stream into a universal format, and then transmitting the universal format data to an output device. Williams '283 makes no reference to integrating data between storage volumes of a single storage system, or converting data directly between the native formats of two computer systems. As William '283 does not teach or suggest the above, Williams '283 cannot render obvious Applicant's claim 1, either alone or in combination with Church. Thus, claim 1 is allowable and the 103 rejection should be withdrawn.

Claims 2-6 and 12 depend from claim 1 and are thus allowable for substantially the same reasons as claim 1, as well as for the additional limitations they recite.

IV. 35 U.S.C. § 103 Rejections of Claims 7-9

Claims 7-9 are rejected under 35 U.S.C. §103(a) as being unpatentable over Church and Williams '283 and in further view of Bruce Schneier *"Applied Cryptography"* (hereinafter "Schneier").

Claims 7-9 are dependent on claim 1. Therefore, these claims are not rendered obvious by Church and Williams '283 for substantially the same reasons as claim 1, as well as for the additional limitations they recite. Schneier does not make up for these deficiencies. Schneier discloses general principles of cryptography, but does not teach or suggest "extracting data from a first volume of a storage system,... storing the encrypted data in a shared volume of the storage system,... [and] loading the received data to a second volume of the storage system...," or "converting the received data from the first file format to a second file format, the

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first file format being native to the first computer system and the second file format being native to the second computer system." As such, Schneier cannot render claims 7-9 obvious, either alone or in combination with Church and Williams '283. Thus, claims 7-9 are allowable and the 103 rejections should be withdrawn.

V.   **35 U.S.C. § 103 Rejections of Claims 10-11, 16-20 and 23-24**

Claims 10-11, 16-20 and 23-24 were rejected under 35 U.S.C. §103(a) as being unpatentable over Church and Williams '283 and in further view of Tamaki et al. (U.S. Publication No. 2002/0059427 (hereinafter "Tamaki").

Independent claims 16, 23, and 24 recite limitations that are substantially similar to claim 1. Therefore, these claims are not rendered obvious by Church and Williams '283 for substantially the same reasons as claim 1, as well as for the additional limitations they recite. Tamaki does not make up for these deficiencies. Tamaki teaches a system for load-balancing resources in a data center, but does not teach or suggest "extracting data from a first volume of a storage system,... storing the encrypted data in a shared volume of the storage system,... [and] loading the received data to a second volume of the storage system...," or "converting the received data from the first file format to a second file format, the first file format being native to the first computer system and the second file format being native to the second computer system." As such, Tamaki cannot render claims 16, 23, and 24 obvious, either alone or in combination with Church and Williams '283. Thus, claims 16, 23, and 24 are allowable and the 103 rejections should be withdrawn.

Claims 10-11 and 17-20 depend from claims 1 and 16 respectively and are thus allowable for substantially the same reasons as claims 1 and 16, as well as for the additional limitations they recite.

VI.   **35 U.S.C. § 103 Rejections of Claims 13-14**

Claims 13-14 were rejected under 35 U.S.C. §103(a) as being unpatentable over Church and Williams '283 and in further view of Williams et al. (U.S. Publication No. 2005/0021969) (hereinafter "Williams '969").

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Claims 13-14 are dependent on claim 1. Therefore, these claims are not rendered obvious by Church and Williams '283 for substantially the same reasons as claim 1, as well as for the additional limitations they recite. Williams '969 does not make up for these deficiencies. Williams '969 discloses a method for validating digital certificates, but does not teach or suggest "extracting data from a first volume of a storage system,... storing the encrypted data in a shared volume of the storage system,... [and] loading the received data to a second volume of the storage system...," or "converting the received data from the first file format to a second file format, the first file format being native to the first computer system and the second file format being native to the second computer system." As such, Williams '969 cannot render claims 13-14 obvious, either alone or in combination with Church and Williams '283. Thus, claims 13-14 are allowable and the 103 rejections should be withdrawn.

VII.   35 U.S.C. § 103 Rejection of Claim 15

Claim 15 was rejected under 35 U.S.C. §103(a) as being unpatentable over Church in view of Schneier.

Claim 15 has been canceled without prejudice and without disclaimer. Thus, the Examiner's rejection is moot.

VIII.   35 U.S.C. § 103 Rejections of Claims 13 and 21

Claims 13 and 21 were rejected under 35 U.S.C. §103(a) as being unpatentable over Church, Williams '283, Tamaki and in further view of Williams '969.

Claims 13 and 21 depend from claims 1 and 16 respectively. Therefore, these claims are not rendered obvious by Church and Williams '283 for substantially the same reasons as claim 1 and 16, as well as for the additional limitations they recite. Furthermore, Tamaki and Williams '969 do not make up for these deficiencies. Thus, claims 13 and 21 are allowable and the 103 rejections should be withdrawn.

IX.   35 U.S.C. § 103 Rejection of Claim 25

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Claim 25 was rejected under U.S.C. §103(a) as being unpatentable over Church, Williams '283, Tamaki and in further view of Schneier.
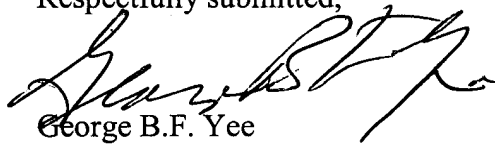
Claims 25 depends from claim 24. Therefore, claim 25 is not rendered obvious by Church, Williams '283, and Tamaki for substantially the same reasons as claim 24, as well as for the additional limitations it recites. Furthermore, Schneier does not make up for these deficiencies. Thus, claim 25 is allowable and the 103 rejection should be withdrawn.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,

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